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Rethinking research integrity : a dialogical and reflective approach

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RETHINKING RESEARCH INTEGRITY –A DIALOGICAL AND REFLECTIVE APPROACH

Susana Magalhães

Abstract

In this chapter, we reflect on responsible conduct in research and the need to complement a top-down normative approach with a bottom-up dialogical approach, giving the example of the training sessions organised since October 2019 at the Institute for Research and Innovation in Health Sciences - i3S based in Porto, Portugal. Research integrity has been the main concern of universities and other research institutions due to the increasing number of cases of research misconduct every year. Although scientific governance documents aim to promote the integrity and accountability of researchers, rather than focusing exclusively on cases of misconduct, they tend to be interpreted as warnings to avoid fabrication, falsification and plagiarism, emphasising the need for sanctions. However, the meaning of integrity for researchers is not homogeneous and can be determined by context. We argue that the integrity of researchers should be promoted in a positive bottom-up approach, without neglecting open, transparent and clear standards and guidelines for responsible conduct.*

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1. Responsible conduct and research institutions

Research integrity is now a key issue of concern for universities and other research institutions due to the growing number of cases of research misconduct every year.⁵³⁴ Since the 1980s, research misconduct has led to the institutionalization of bodies with a specific focus on dealing with research integrity issues, such as the Office of Research Integrity in the US and the UK Research Integrity Office. However, the annual number of articles on research integrity indexed in the Web of Science™ between 1982 and 2019 has risen from none to over 200.⁵³⁵ Science is no longer a one-person business, with isolated researchers working in their own laboratories, and the number of researchers has risen sharply, while the pressure to publish continues to grow. In an academic world that is now largely open to society, the number of stakeholders is constantly increasing. Guidelines and norms have been issued covering the different dimensions and principles of trustworthy, reliable, honest, and accountable research: the Singapore Statement (2010), the Montreal Statement (2013), the Hong Kong Principles

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⁵³⁴ L. K. Altman, 'For Science's Gatekeepers, a Credibility Gap', *The New York Times*, 2 May 2006; B. Deer, 'How the Case Against the MMR Vaccine Was Fixed', *BMJ*, 342 (2011), e5347; N. H. Steneck, 'Assessing the Integrity of Publicly Funded Research [Data Set]', in *Investigating Research Integrity: Proceedings of the First ORI Research Conference on Research Integrity*, ed. by N. Steneck and M. D. Scheetz (Rockville, MD: Office of Research Integrity, 2002), pp. 1-16; N. H. Steneck, 'Fostering Integrity in Research: Definitions, Current Knowledge, and Future Directions', *Science and Engineering Ethics*, 12(1) (2006), 53-74.

⁵³⁵ M. Szomszor and N. Quaderi, *Global Research Report—Research Integrity: Understanding Our Shared Responsibility for a Sustainable Scholarly Ecosystem* (London and Philadelphia: Institute for Scientific Information, Clarivate, 2020).

(2019), and the revised European Code of Conduct for Research Integrity (2017).

Hundreds of articles have been written on the threats to research quality, including the competitive environment, pressure to publish, poor mentoring and supervision, and a reward system based on metrics, all of which are likely to promote ethical disengagement strategies. But making a statement about what is wrong—about unethical conduct—is not enough to understand what to do to put integrity back at the heart of the system. In ‘Reasons Why Scientists Avoid Thinking about Ethics’, Wolpe points out that ethics is claimed to be arbitrary, an obstacle to progress, and an outsider in the research environment.⁵³⁶ Apart from these reasons overtly mentioned by researchers, we believe that there are cognitive distortions that support disengagement from compliance. Like Bandura and others, we think that moral disengagement may be focused on the cognitive restructuring of unethical conduct into benign or worthy behavior by moral justification or sanitizing language.⁵³⁷ To deepen this perspective, DuBois, Chibnall, and Gibbs conducted innovative research.⁵³⁸ They adapted the ‘How I think’ survey to create the ‘How I think about research’ questionnaire, developing a useful tool for understanding the factors that influence research integrity.⁵³⁹ It includes the cognitive distortions mentioned by Bandura: blaming others,

⁵³⁶ P. R. Wolpe, ‘Reasons Scientists Avoid Thinking about Ethics’, *Cell*, 125(6) (2006), 1023-25.

⁵³⁷ A. Bandura and others, ‘Multifaceted Impact of Self-Efficacy Beliefs on Academic Functioning’, *Child Development*, 67(3) (1996), 1206-22.

⁵³⁸ J. M. DuBois, J. T. Chibnall, and J. Gibbs, ‘Compliance Disengagement in Research: Development and Validation of a New Measure’, *Science and Engineering Ethics*, 22(4) (2016), 965-88.

⁵³⁹ J. C. Gibbs, A. Q. Barriga, and G. B. Potter, *How I Think (HIT) Questionnaire and Manual* (Champaign, IL: Research Press, 2001).

minimization/mislabeling, and egocentric thinking.⁵⁴⁰ The authors point out that this instrument can be used to make researchers aware that ‘ordinary’ researchers can violate the basic rules of science by self-justifying their behaviors. This kind of confrontation appears necessary to us because questionable research practices (QRPs) seem to be much more prevalent and damaging than they seem. Such practices are the tip of the iceberg and need to be seriously addressed, not only for their negative impact on the quality and reputation of science but also, and most of all, for what they stand for in researchers’ everyday life: demotivating realities that threaten mental health and compromise team and individual work.⁵⁴¹ Considering this alarming observation made at the level of the individual, the question for research is how to go from words to deeds when one is an institution.⁵⁴²

2. The three r’s: reflection, responsibility, and reciprocity

The Unit for Responsible Conduct in Research (URCR) of the Institute for Research and Innovation in Health Sciences—i3S has decided to put the principles of integrity into practice with the devices described in the following pages. The URRCR’s work plan was designed by the author of this paper, as head of the unit, working closely with the Committee for Ethical and Responsible Conduct of Research and following the documents and policies regarding scientific integrity already implemented at i3S. The three main pillars of our work plan focus on three main areas; the pillars are the three R’s: *Reflection*,

⁵⁴⁰ A. Bandura, ‘Moral Disengagement in the Perpetration of Inhumanities’, *Personality and Social Psychology Review*, 3(3) (1999), 193-209.

⁵⁴¹ Shift Learning, *What Researchers Think About the Culture They Work In* (London: Wellcome Trust, 2020).

⁵⁴² N. Mejlgaard and others, ‘Research Integrity: Nine Ways to Move from Talk to Walk’, *Nature*, 586(7829) (2020), 358-60.

Responsibility, and Reciprocity, and the areas are Training, Clarifying Terms/Concepts/Procedures, and Open Dialogue.

Our Institute

The Unit for Responsible Conduct in Research of the Institute for Research and Innovation in Health Sciences—i3S addresses questions of integrity by focusing on solid training for researchers and students and developing clear policy documents to guide the institution.

This institute results from the long-term collaboration between the Institute for Molecular and Cell Biology (IBMC), Institute for Biomedical Engineering (INEB), and Institute of Molecular Pathology and Immunology of the University of Porto (IPATIMUP), and focuses on three integrative research programs: Cancer, Host Interaction and Response, and Neurobiology and Neurological Disorders. The transdisciplinary character of i3S is achieved by promoting projects addressing questions that require the participation of basic and applied sciences. It brings together over 1,400 workers and has a strong social mission, reflected in the training of young scientists, clinical services, and public engagement with science. i3S has therefore become the major Portuguese research institute in health sciences, gaining in critical mass and conducting multidisciplinary research that facilitates the development of integrated studies and solutions in the fields of biomedicine and health. In 2019, two units were set up to address cross-cutting issues related to scientific integrity and career development: the Unit for Responsible Conduct in Research (URCR) and the Unit for Career Development.

Reflection on research practices and on the meanings of terms and concepts related to responsible research can guide scientists as they encounter the complexity of their daily activities, potentially influencing their choice of how to act when they face ethically ambiguous situations. Based on the idea supported by Johansen and Christiansen that ‘in order

to teach students responsible lab practice, one should move from the level of actions (this action is right, and this is wrong) to the level of justification', we argue that the same applies to researchers in all stages of their career.⁵⁴³ Not only do researchers need to engage in ethical deliberations, but integrity offices and research governance bodies also need to rethink the meaning of integrity, misconduct, and QRP, since there is no agreement on what these terms stand for: 'because science is an innovative and ever-changing endeavor, the meaning of misbehavior is permanently shifting and frequently readdressed and renegotiated within the scientific community. Quantitative approaches alone are thus hardly able to accurately portray this dynamic phenomenon'.⁵⁴⁴

Responsibility is the prerequisite for freedom of research: choosing the research question, the methodology, the procedures for data collection and storage, and the means for disseminating data and results can only be free if researchers take responsibility for their choices and are accountable for them. Moreover, since research integrity is reflected in norms within a deontological approach, adherence to these norms requires: (1) understanding how guidelines apply to daily research practice, (2) acknowledging the broader context of all the stakeholders involved, and (3) recognizing one's own responsibility to promote a good research environment. The territory where one can move from intentions to consequences without forgetting who one wants to be is the area of deliberation, which is promoted in our training sessions, as explained below.

Reciprocity, the third pillar, is the result of the other two R's: if one steps back, sees oneself and one's team from the outside, and takes

⁵⁴³ M. W. Johansen, and F. V. Christiansen, 'Handling Anomalous Data in the Lab: Students' Perspectives on Deleting and Discarding', *Science and Engineering Ethics*, 26(2) (2020), 1107-28.

⁵⁴⁴ F. Hesselmann, V. Wienefoet, and M. Reinhart, 'Measuring Scientific Misconduct—Lessons from Criminology', *Publications*, 2(3) (2014), 61-70, p. 61.

responsibility for one's choices among alternative paths, reciprocal relationships within the research environment can actually happen, providing benefits for all the stakeholders. The main idea underlying this workplan is to fight *inattentional blindness* by shifting the common approach to or perspective on research issues.⁵⁴⁵ Too much focus on misconduct within a top-down normative framework does not actually address researchers' needs and queries and can create a false sense of compliance: if one merely follows the rules without believing in them and without understanding why they were formulated, one can easily break them.

Today, as research institutions have become more concerned about misconduct, public awareness of misconduct has increased, restoring a central role for national and international guidelines on responsible conduct in research. The focus is now on promoting integrity and accountability, rather than focusing exclusively on misconduct (fabrication, falsification, plagiarism, and ghost authorship). We believe that there is a strong need to use positive reinforcement, within a bottom-up approach, and to build on the good practices that are already in place.

3. Working out the meaning of research integrity at i3s

The meaning of the concept of 'integrity' for researchers, research institutions, and policymakers is not homogeneous. Its definition is clearly influenced by each person's individual experience, training, and work environment. Defining research misconduct seems easier. One can distinguish between very narrow definitions of misconduct, which limit it to falsification, fabrication, and plagiarism (FFP); broader definitions that include what are currently referred to as QRPs; and conceptually

⁵⁴⁵ C. Kreitz and others, 'Inattentional Blindness and Individual Differences in Cognitive Abilities' *PLoS ONE*, 10(8) (2015), Article e0134675.

open definitions that include unethical behaviors not strictly linked to research practices.⁵⁴⁶

Considering this difference of interpretation and assuming that no training in research integrity will be effective unless it is based on reflection and dialogue, the URCCR at i3S has been promoting integrity among researchers following a bottom-up approach that includes:

- working closely with the researchers, answering their queries, and promoting their training in ethics and responsible conduct of research;
- being the contact point for those wishing to report cases of research misconduct, in confidence, before any formal allegation is made;
- issuing guidance procedures on how to make allegations of research misconduct;
- supporting the i3S community in the implementation of international codes of conduct and international best practices in research ethics and integrity;
- working in collaboration with other national and international institutions of excellence in the field of ethics and responsible conduct of research;
- promoting training actions on vital areas pertaining to bioethics and responsible conduct of research, as well as other scientific activities and the subsequent dissemination of results.

The three R's—Reflection, Responsibility, and Reciprocity—mentioned before are the main pillars of the training sessions that regularly take place at i3S. The aim is to give researchers the opportunity to reflect upon the various dimensions of research ethics and

⁵⁴⁶ S. P. J. M. Horbach and W. Halfman, 'Promoting Virtue or Punishing Fraud: Mapping Contrasts in the Language of "Scientific Integrity"', *Science and Engineering Ethics*, 23(6) (2017), 1461-85.

integrity, while also making them aware of the different international and institutional rules and guidelines that regulate the responsible conduct of research. The methodology that is used is dialogical and self-reflective, with instruments that elicit the researchers' perspectives and perceptions, without compromising their right to withhold their views. Each session is structured around theory presentation, individual participation (face-to-face or online sessions), discussion of case studies, dilemma games played in real time, and take-home messages. The target audience has been PhD holders and junior researchers, but the aim is to include researchers at all career stages. The URCR holds meetings with each research group in order to get feedback on various dimensions of responsible research: ethics, governance, open access, public engagement, and science education.

During the first two training sessions, researchers are asked to talk about the ethical aspects of the work they are doing, which signals that each of them is responsible for considering their roles in protecting the integrity of the team's work. So the first step is to make each researcher reflect on the nature of science and on the terms and concepts that are used within the field of scientific research.

The terms 'good research' and 'good researcher' refer to various concepts that range from a utilitarian approach to a moral view of goodness, and it is with these terms that the reflective path starts in the training sessions. The self-declaration approach, one of the tools used within the *training the trainers* Virt2UE program, has been adapted in a self-reflective document on what 'good research' and 'good researcher' mean, as well as on the main ethical issues and breaches of integrity that researchers have faced themselves or witnessed in others.⁵⁴⁷ At this point, the aim is not so much to explore the reasons why these unethical

⁵⁴⁷ CORDIS, *Virtue Based Ethics and Integrity of Research: Train-the-Trainer Program for Upholding the Principles and Practices of the European Code of Conduct for Research Integrity*, 21 September 2021.

or questionable behaviors happen, but mainly to give participants the opportunity to explore

- what kind of virtue there is in research;
- what an ethical issue is;
- what cognitive distortions we use when we disengage from compliance;
- and how aware we are of the ethical questions that come up in research and for the different stakeholders.

Based on the reflections of the participants in these training sessions, goodness in research is related both to character (moral approach) and to procedures and goals (procedural and utilitarian approach). One approach does not predominate over the other, which suggests that the rising number of questionable practices among scientists is not due to lack of awareness of the right thing to do.

Moving on from the nature of science to the nature of the research environment, and still focused on the researcher's own identity and existence within a community, the second step aims to promote reflection on the kind of conflicts that prevail among researchers and how to avoid or deal with them. Researchers usually highlight three issues as being frequent and harming themselves and the quality of the work environment: poor supervision, authorship-related conflicts, and internal conflicts related to reporting misconduct. Only after these first two steps are taken are the trainees invited to reflect on misconduct and questionable practices. As far as breaches of research integrity are concerned, the researchers participating in our training sessions have emphasized the need to reflect on unethical authorship, creative data normalization, plagiarism, and poor supervision, together with the relevance of promoting an assessment system for researchers that is not bibliometric and balancing the normative approach to integrity with a reflective, dialogical one. Only by reflecting upon the codes and guidelines for responsible research can scientists be reminded of these

norms. Moreover, it is through reflection and critical thinking that researchers can become more sensitive to ethical issues and be able to recognize them and bridge the gap between abstract principles and concrete dilemmas experienced in their daily lives.

The reasons for not reporting misconduct include ‘for example, the (non) seriousness of the deviation, nature of the relationship to the offender, power imbalances, and fear of severe consequences of reporting such as reputational or career damage’.⁵⁴⁸ In our group discussions on this issue, all of these reasons have been clearly or implicitly referred to by researchers, and power imbalances are mentioned most frequently. Clear institutional guidelines on the procedures to report misconduct are important but not sufficient. Open discussions of researchers’ perspectives on what constitute cases of misconduct and QRP are essential to promote moral sensitivity and build confidence in the system. At i3S, clear guidelines have been issued, together with clarification of terms, and they have been the focus of reflection not only in formal training sessions but also in informal conversations between the URCR and researchers.

The same kind of normative/dialogical approach is used to address authorship and supervision conflicts: authorship guidelines have been complemented with a document clarifying terms and concepts, which also aims to provide a framework for task planning and authorship credits and order. These documents should be discussed in training sessions and within each research group, so that they can be living documents and not merely rules and norms that may be detached from researchers’ everyday practice. Concerning the specific issue of poor supervision, the need to reflect and debate is particularly urgent, since many conflicts are kept silent for fear of retaliation, lack of awareness of

⁵⁴⁸ M. V. Buggenhout, J. Christiaens, and S. Gutwirth, *Final Report on the Incidence of Misconduct* (Promoting Integrity as an Integral Dimension of Excellence in Research) (Brussels: Vrije Universiteit Brussel—VUB, n.d.).

the ethical issue at stake, or misunderstandings based on individual expectations.

Given that these training sessions only started in 2019, it is still too early to assess their impact. However, the individual feedback has been positive, stressing the importance of being given the opportunity to reflect, discuss, and speak up on issues of research integrity that were not previously discussed. Infrastructural obstacles have been often pointed out, mainly funding pressure, poor career development expectations, and the lack of transparency concerning assessment and recruitment. We expect that the bottom-up approach will be complemented by a top-down restructuring of the research ecosystem, including all stakeholders: not only individual researchers but also funding institutions, universities, research institutions, and political decision-makers. Moreover, we have invited researchers working at integrity agencies and other research institutions based in other countries to share their experience and discuss integrity issues with the i3S community, because we believe that only by sharing can we actually improve training strategies and governance documents.

4. Final remarks

By creating a unit for the responsible conduct of research, i3S has made a courageous and unambiguous strategic choice: good research requires not only a solid scientific background but also thoughtful practice in ethics and integrity. Formalizing clear, open public standards and guidelines is essential for responsible research. Solid training in this area helps to create an interpersonal dialogue that focuses on the essential: integrity. Otherwise, researchers' attention remains focused on their publications, and we know that people sometimes fail to notice a salient, very visible point. This phenomenon is known as 'inattentional blindness'. Our ability to focus our attention allows us to ignore

irrelevant or distracting information, but it sometimes makes us miss things we should or would have liked to see.⁵⁴⁹

To sum up, within the field of ethics and integrity in everyday research, there are four main areas that need to be addressed and have been the focus of attention:

- reflecting on terms and concepts;
- defining clear norms and guidelines for research practice;
- preventing and, when it cannot be prevented, sanctioning misconduct;
- thinking with and not only about the codes for responsible research, mainly concerning questionable research practices.

The everyday life of researchers at all career stages is generally inspired by good intentions and practices, and ethical issues are experienced as complex and fully intertwined with their identity and not only with their role as scientists. Promoting integrity within a holistic approach requires all stakeholders to share responsibility for a sustainable research ecosystem. By using the term ‘ecosystem’, we are underscoring the interrelations among all the participants in the world of science, which have been all the more visible with the growing trend toward open science.

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